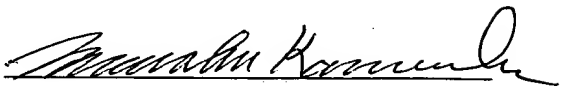
Respectfully submitted,
KANESAKA AND TAKEUCHI

by 

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was broken when it was screwed with torque of 0.5Nm or more. It means that the front board must be screwed with torque below 0.5Nm. On the other hand, the screw loosening happened at the 0.08Nm torque. This was resulted from that the front board and the screw repeated thermal expansion and thermal shrinkage alternatively as the etching process and the etching interval are repeated alternatively. The screw supposedly loosened from difference of thermal expansion coefficient or thermal shrinkage coefficient. It is considered that installation or thermal contact of the front board onto the main body had become much insufficient from such the screw loosening.

[0080] Contrarily, as shown in Table 2, in the structure where the front board is clamped by the screwed clamping plate, the front board breaking was not recognized even when the screwing torque was increased up to 2.0Nm. At the screwing torque of 1.0Nm or more, no screw loosening was recognized. These results demonstrate that the apparatus of each embodiment can improve thermal contact of the front board onto the main body by pressing the front board onto the main body with greater force.

[0081] Next, screwing torque for adequate thermal contact is described about using Fig.9. Fig.9 shows result of an examination for relationship between screwing torque of the

clamping plate and contact of the front board on the main body. In this experiment, heat resistance $\left(KW^{-1}\right)$ between the front board and the main body was measured when the apparatus of the first embodiment was operated under the described condition (Table 1), varying screwing torque of the clamping plate.

[0082] As shown in Fig.9, the heat resistance decreases as the torque is increased, demonstrating improvement of the thermal contact. Decrease of the heat resistance becomes dull around the 1.0Nm torque, and almost constant at the 1.5Nm torque or more. These results demonstrate that the screwing torque of 1.0Nm or more is preferable for securing effects of improvement of thermal contact and prevention of screw loosening.

[0083] Next is described an examination for relationship between screwing torque of the clamping plate and reproducibility of the etching. Fig.10 shows result of this examination. In this experiment, the etching rate in the cases of the screwing torque of 0.08Nm and 1.2Nm was measured when the etching process was repeated operating the apparatus of the first embodiment under the described condition.

[0084] As shown in Fig.10, in the case of the 0.08Nm screwing torque, etching rate dropped by the fifth times of the etching process. In other words, reproducibility of the etching